JOURNAL OF ALLOYS AND COMPOUNDS VOLUMES 209, NUMBERS 1–2, JULY 1994

# Contents

Synthesis of $Cr_7C_3$ and $Cr_3C_2$ by mechanical alloying. . . . . L1
L. Li and J. Tang (New Orleans, LA, USA)

Effect of transition element substitution on the amorphization temperature in the $ErCo_2$ C15 Laves compound . . . . L5
Y.-J. Yong and J.-Y. Lee (Taejon, South Korea)

Hydrothermal crystallization of $NaZr_2(PO_4)_3$ in $F^-$ medium . . . . . L9
H. Wang and W. Pang (Changchun, China)

Magnetic properties of $CeAlO_3$ . . . . . L11
T. Shishido, H. Iwasaki, N. Toyota (Sendai-shi, Japan), M. Tanaka (Ibaraki, Japan), H. Horiuchi, S. Nojima (Tokyo, Japan), S. Nakagawa and T. Fukuda (Sendai-shi, Japan)

Bonding and brittleness in B2-type FeAl. . . . . L15
C.G. Meng (Dalian, China), G. Lu, J.T. Guo and Z.Q. Hu (Shenyang, China)

$K(Mg_{2.61}Cu_{0.39})Cu(AsO_4)_3$: Eine weitere Verbindung mit Johilleritstruktur . . . . . L19
D. Osterloh and Hk. Müller-Buschbaum (Kiel, Deutschland)

Semi-empirical equations for pressure–composition–temperature curves of the Ti–H system. . . . . L23
S. Fukada and M. Nishikawa (Fukuoka, Japan)

Location of oxygen in the structure of the Chevrel phase $Cu_{1.8}Mo_6S_{8-z}O_z$ . . . . . L29
R. Černý, K. Yvon (Geneva, Switzerland), M. Wakihara (Tokyo, Japan) and P. Fischer (Villigen, Switzerland)

Magnetic behaviour of $R_2Co_7B_3$ compounds (R = Ho,Er,Tm). . . . . L33
E. Burzo, C. Gusa, B. Kevorkian and T. Veres (Cluj-Napoca, Romania)

Luminescence of materials based on $LuTaO_4$. . . . . 1
G. Blasse, G.J. Dirksen (Utrecht, Netherlands), L.H. Brixner and M.K. Crawford (Wilmington, DE, USA)

Preparation and characterization of amorphous and crystalline $LaNi_5$ thin film electrodes . . . . . 7
Y. Li, Y.-T. Cheng and M. Ahsan Habib (Warren, MI, USA)

Calculations of valence stabilities for the lanthanide metals . . . . . 15
J. Melsen (Leiden, Netherlands), J.M. Wills (Los Alamos, NM, USA), B. Johansson and O. Eriksson (Uppsala, Sweden)

The solid combustion synthesis of small $REBa_2Cu_3O_x$ samples (RE = Y, Er) . . . . . 25
B. Rupp, J. Wong, J. Birch Holt and P. Waide (Livermore, CA, USA)

The taming of palladium: the influence of cerium additions on the magnetic and transport properties of palladium in the composition range of 5 to 16.7 at.% Ce . . . . . 35
H. Takeya (Ibaraki-ken, Japan), K.A. Gschneidner, Jr., B.J. Beaudry, T. Ellis and V.K. Pecharsky (Ames, IA, USA)

U doping study of U-based heavy fermions: $UCu_4Pd$ and $UCu_{3.5}Pd_{1.5}$ . . . . . 43
B. Andraka (Gainesville, FL, USA)

Structural chemistry and magnetism of dicyclopentadienidehalides of lanthanides
Part 8: terbiumdicyclopentadienidebromide $[Tb(C_5H_5)_2Br]_2$. . . . . 49
J. Schmitz, H. Schilder and H. Lueken (Aachen, Germany)

A simple approach to materials design: role played by an ionic–covalent parameter based on polarizing power and electronegativity . . . . . 59
J. Portier, G. Campet, J. Etourneau, M.C.R. Shastry and B. Tanguy (Talence, France)

Oxygen analysis for high-$T_c$ copper oxides: an alternative method for the determination of solid solution limits . . . . 65
X. Chen, J. Liang, C. Wang, W. Yuan, X. Xing and Z. Qiao (Beijing, People's Republic of China)

Thermally assisted solid state amorphization in rod-milled $Al_{50}Hf_{50}$ composite. . . . . 71
M. Sherif El-Eskandarany (Cairo, Egypt), K. Aoki, T. Masumoto and K. Suzuki (Sendai, Japan)

Thermodynamic behaviour of metallic melts at high dilution according to the associated solution model . . . . . 81
R. Lbibb, M. Gilbert and R. Castanet (Marseille, France)

*In situ* X-ray diffraction: a useful tool to investigate hydride formation reactions . . . . . 85
P.H.L. Notten, J.L.C. Daams, A.E.M. De Veirman and A.A. Staals (Eindhoven, Netherlands)

Elsevier Science S.A.

Phase transitions in intermetallic compounds of CrB-type structure during hydrogen sorption ..... 93
I.E. Nemirovskaya and V.V. Lunin (Moscow, Russian Federation)

Effects of pretreatment on the activation behavior of $Zr(V_{0.25}Ni_{0.75})_2$ metal hydride electrodes in alkaline solution 99
A. Züttel, F. Meli and L. Schlapbach (Fribourg, Switzerland)

New ternary holmium–ruthenium–germanides: HoRuGe and $Ho_3Ru_2Ge_3$ ..... 107
O.L. Sologub, Yu.M. Prots', P.S. Salamakha and O.I. Bodak (L'viv, Ukraine)

Hydrogen in the A15 compound $V_3Ga$: $^{51}V$ and $^1H$ nuclear magnetic resonance study ..... 111
A.V. Skripov, Yu.G. Cherepanov (Ekaterinburg, Russian Federation) and H. Wipf (Darmstadt, Germany)

Hydride formation in $Mg–ZrFe_{1.4}Cr_{0.6}$ composite material ..... 117
Y. Zhou, L.C. Erickson and B. Hjörvarsson (Uppsala, Sweden)

A study of the effects of heat treatment on the microstructures and magnetic properties of Cu-added Nd–Fe–B type sintered magnets ..... 125
O.M. Ragg and I.R. Harris (Birmingham, UK)

Structure and magnetic properties of TbMnGa ..... 135
M. Bacmann, D. Fruchart, J.L. Soubeyroux (Grenoble, France), J.H.V.J. Brabers, F.R. de Boer (Amsterdam, Netherlands) and K.H.J. Buschow (Eindhoven, Netherlands)

Non-locally derivable sublattices in quasi-lattices. ..... 139
R. Lück and K. Lu (Shenyang, China)

Modulated crystal structure of $K_4(NbO)_2[Si_8O_{21}]$. ..... 145
R.K. Rastsvetaeva, D.Yu. Pushcharovsky, N.B. Bolotina, T.N. Nadejina and O.V. Dimitrova (Moscow, Russian Federation)

Syntheses and crystal structures of $Tl_5Se_2Cl$ and $Tl_5Se_2Br$ ..... 151
Th. Doert (Düsseldorf, Germany), R. Asmuth (Krefeld, Germany) and P. Böttcher (Dresden, Germany)

Electronic structure of lithium-based antiperovskite hydrides ..... 159
E. Orgaz and M. Gupta (Orsay, France)

Coarsening of TiC particles in a rapidly solidified Ti6Al4V–TiC composite. ..... 167
D. Hu and M.H. Loretto (Birmingham, UK)

Preparation of vanadium nitride and its subsequent metallization by thermal decomposition ..... 175
P.K. Tripathy, A. Arya and D.K. Bose (Bombay, India)

Solid solutions of silicon in boron-carbide-type crystals ..... 181
H. Werheit, U. Kuhlmann, M. Laux (Duisburg, Germany) and R. Telle (Aachen, Germany)

Zur Kenntnis eines Strontium–Oxoniccolats(IV): $Sr_{12}Ni_{7.5}O_{27}$ ..... 189
M. Strunk und Hk. Müller-Buschbaum (Kiel, Deutschland)

Determination of standard molar Gibbs' energy of formation of $Sr_3MoO_6(s)$. ..... 193
Z. Singh, R. Prasad, S. Dash and D.D. Sood (Bombay, India)

Thermodynamic properties of Zn in Te-saturated ZnSe–ZnTe solid solutions ..... 197
A. Nasar (Varanasi, India)

Combustion synthesis and properties of $Ln_3Fe_5O_{12}$ and yttrium aluminium garnets. ..... 203
K. Suresh and K.C. Patil (Bangalore, India)

Sublimation study of tellurium tetrachloride and tetraiodide from their vapour pressure measurements. ..... 207
L. D'Alessio (Potenza, Italy), D. Ferro and V. Piacente (Rome, Italy)

$Ba_3Ir_2H_{12}$, a new ternary hydride containing octahedral $[IrH_6]^{3-}$ complex anions ..... 213
K. Kadir and D. Noréus (Stockholm, Sweden)

Magnetic structure of $Dy_2Cr_2C_3$ ..... 217
M. Reehuis (Grenoble, France), K. Zeppenfeld, W. Jeitschko (Münster, Germany) and E. Ressouche (Grenoble, France)

Magnetic hardening of mechanically milled $Sm_2Fe_{14}Ga_3C_2$ ..... 221
J. Ding (Nedlands, W.A., Australia), B. Shen (Beijing, China), P.G. McCormick, R. Street (Nedlands, W.A., Australia) and F. Wang (Beijing, China)

Preparation and superconducting properties of high-quality Bi-2212 ceramics ..... 225
T. Tsukamoto (Toyota, Japan), G. Triscone, J.-Y. Genoud, K.-Q. Wang, E. Janod, A. Junod and J. Muller (Geneva, Switzerland)

Magnetic properties of amorphous Y–Fe–N thin films . . . . . 231
D. Courtois, J.P. Nozières and D. Givord (Grenoble, France)

A stable Nd–Fe–O ternary compound in $Nd_{34}Fe_{60}O_6$ alloy . . . . . 235
N. Wang, Z. Chen, X. Song and X. Wang (Xian, People's Republic of China)

Ein neuer Strukturtyp eines Halogenoxoruthenats mit geordneter Ru(IV)–Ru(V)-Verteilung: $Ba_5Ru_2O_5Cl$ . . . . . 239
M. Rath und Hk. Müller-Buschbaum (Kiel, Deutschland)

Magnetic properties of $Sm_2(Fe_{1-x}Ga_x)_{17}$ compounds ($x = 0$–$0.5$) . . . . . 245
W.Z. Li, N. Tang, X.P. Zhong, J.L. Wang, Y.H. Gao, F. Yang and Y.W. Zeng (Beijing, China)

Crystal structures and physical properties of some new ternary compounds $U_2T_3X$ (T = Ru, Os; X = Si, Ge) . . . . . 251
A. Vernière, P. Lejay, P. Bordet, J. Chenavas, J.P. Brison, P. Haen and J.X. Boucherle (Grenoble, France)

Catalytic effects of alloy surface on the oxygen consumption reaction in a sealed Ni/TiNiH battery . . . . . 257
D.-Y. Yan (Tokyo, Japan)

Investigation of the Np–Zr and U–Zr–Np systems . . . . . 263
R. Julián Rodríguez, C. Sari (Karlsruhe, Germany) and A.J. Criado Portal (Madrid, Spain)

Lithium intercalation into double rare earth chromates . . . . . 269
P. Melnikov (Araraquara, SP, Brazil)

Magnetic properties of $TlLnS_2$ compounds (Ln = Nd, Gd, Dy, Er and Yb) . . . . . 271
M. Duczmal and L. Pawlak (Wrocław, Poland)

Microstructures of Mg–Zn–Zr–RE alloys with high RE and low Zn contents . . . . . 275
Z. Luo, S. Zhang (Beijing, People's Republic of China), Y. Tang and D. Zhao (Zhengzhou, People's Republic of China)

Annealing of aluminium oxide coatings on iridium-coated isotropic graphite at high temperature in argon atmosphere . . . . . 279
K. Mumtaz, J. Echigoya, H. Enoki, T. Hirai and Y. Shindo (Sendai, Japan)

A simple model for the estimation of electronegativities of cations in different electronic states and coordinations 285
J. Portier, G. Campet, J. Etourneau and B. Tanguy (Talence, France)

Crystal structure and superconductivity of high pressure hydrides and deuterides of HfRu and ZrRu compounds 291
V.E. Antonov, E.L. Bokhenkov, A.I. Latynin, V.I. Rashupkin (Moscow, Russian Federation), B. Dorner (Grenoble, France), M. Baier and F.E. Wagner (Garching, Germany)

Magnetic properties and structure of hydrogenated Nd–Fe alloys . . . . . 299
V.P. Menushenkov, A.M. Gabay, A.S. Lileev, E.V. Obrucheva and B.V. Jalnin (Moscow, Russian Federation)

The conductivity of $MnAs_{1-x}Sb_x$ and $Cr_yMn_{1-y}Sb$ single crystals . . . . . 305
V. Dankelmann, H. Kohnke (Göttingen, Germany), J.-W. Schünemann (Katlenburg-Lindau, Germany), K. Bärner (Göttingen, Germany), S. Buzhinsky (Donetsk, Ukraine) and I.V. Medvedeva (Ekaterinburg, Russian Federation)

The aluminum–zinc phase diagram under high pressure. . . . . 311
Y. Fujinaga and T. Sato (Sendai, Japan)

Growth of niobium nitrides by nitrogen–niobium reaction at high temperature . . . . . 319
R. Musenich, P. Fabbricatore, G. Gemme, R. Parodi, M. Viviani, B. Zhang, V. Buscaglia and C. Bottino (Genoa, Italy)

Elastic behaviour of Bi–Pb–Ag–$Ca_2CuO_3$ superconducting composite materials. . . . . 329
S. Satyavathi, M. Muralidhar, V. Hari Babu, R. Ravinder Reddy and P. Venugopal Reddy (Hyderabad, India)

Electrical resistivity of the $Gd(Al_{1-x}M_x)_2$ compounds for M = In, Ga, Pd, Sn, Si and Ge . . . . . 337
G. Chełkowska (Katowice, Poland)

Formation and stability of Al–Nd and Al–Nd–Fe metallic glasses . . . . . 341
L. Battezzati, M. Baricco and C. Antonione (Turin, Italy)

A mathematical and experimental dynamical phase diagram for ball-milled $Ni_{10}Zr_7$ . . . . . 351
M. Abdellaoui and E. Gaffet (Belfort, France)

Effect of niobium addition on the Nd–Fe–B alloy and magnet . . . . . 363
F.M. Ahmed, D.S. Edgley and I.R. Harris (Birmingham, UK)

Author Index of Volume 209 . . . . . 369
Subject Index of Volume 209 . . . . . 371

The publisher encourages the submission of articles in electronic form thus saving time and avoiding rekeying errors. A leaflet describing our requirements is available from the publisher upon request.